Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Allocation and Designation of Spectrum	)	IB Docket No. 97-95 ✓
for Fixed Satellite Services	)	
in the 37.5-38.5 GHz, 40.5-41.5 GHz,	)	RM-8811
and 48.2-50.2 GHz Frequency Bands;	)	
Allocation of Spectrum to Upgrade Fixed	)	
and Mobile Allocations in the 40.5-42.5 GHz		
Frequency Band; Allocation of Spectrum	)	
in the 46.9-47.0 GHz Frequency Band for	)	
Wireless Services; and Allocation of Spectrum	)	
in the 37.0-38.0 GHz and 40.0-40.5 GHz	)	
for Government Operations	)	

COMMENTS OF SPECTRUM ASTRO, INC. ON FURTHER NOTICE OF PROPOSED RULE MAKING

Spectrum Astro, Inc. hereby submits comments in response to the Further Notice of Proposed Rule Making ("FNPRM")[1] in the above-captioned rulemaking proceeding, in which the Commission proposes to modify the band plan for the 36.0-51.4 GHz band ("V-Band"). Spectrum Astro is an applicant before the Commission for authorization to provide fixed satellite service ("FSS") in the V-Band via a geostationary orbit ("GSO") satellite constellation. Spectrum Astro commends the Commission for taking this

[1] *Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.4 GHz, and 48.2-50.2 GHz Frequency Bands*, Further Notice of

initiative to modify the domestic V-Band band plan to reflect decisions reached at the 2000 World Radio Conference ("WRC-2000") and also urges the Commission to proceed expeditiously with the V-Band licensing proceeding.

1. The Commission Should Add an FSS Allocation in the 37.5-37.6 GHz Band

Spectrum Astro supports the Commission's proposal to add an FSS allocation in the 37.5-37.6 GHz band for GSO satellite networks.[2] Extending the FSS allocation to include the additional 100 megahertz of spectrum as proposed by the Commission would allow for more flexibility in deployment of future GSO FSS systems.[3] An allocation to FSS in the 37.5-37.6 GHz band is also consistent with WRC-2000.[4]

The 37.5-37.6 GHz band is currently allocated by the Commission to Fixed Service and Mobile Service.[5] The adjacent band, 37.6-40.0 GHz, is currently allocated for FSS, among other services.[6] The Commission proposes in the FNPRM to designate the 37.5-40.0 GHz band for wireless services;[7] however, it does propose to permit some FSS use in that band, subject to certain conditions.[8] The Commission's proposal to add an FSS

Proposed Rulemaking, FCC 01-182, IB Docket No. 97-95, RM-8811 (May 24, 2001) ("FNPRM").

2 FNPRM, at ¶¶ 19-21.

3 *Id.*, at ¶ 19.

4 *WRC-2000 Final Acts*, Art. S5.

5 47 C.F.R. § 2.106 (2000).

6 *Id.*

7 FNPRM, at ¶ 12.

8 *Id.*, at ¶ 19.

allocation in the 37.5-37.6 GHz would provide for a continuous FSS allocation in the 37.5-40.0 GHz band and would be consistent with WRC-2000.

Spectrum Astro agrees with the Commission's rationale behind allowing a GSO FSS allocation in the 37.5-37.6 GHz band.[9] As the Commission points out, circumstances have changed since the Commission adopted the *36-51 GHz Order*.[10,11] In that order, the Commission allocated the 37.6-38.6 GHz band, rather than the 37.5-38.5 GHz band, for FSS out of a concern that an FSS allocation in the 37.5-37.6 GHz band segment might adversely affect Government space research services.[12] Since the *36-51 GHz Order* was adopted, this concern has abated as it now seems clear that only relatively few, large, and expensive FSS terminals are likely to be deployed, given the PFD limits adopted at WRC-2000. The concern was that many small ubiquitous FSS terminals would be deployed, which would have created an adverse sharing environment.

2. The Commission Should Allow Use of the 42.0-42.5 GHz Band for FSS

Spectrum Astro proposes that the Commission add an FSS allocation also in the 42.0-42.5 GHz band, subject to the same conditions that the Commission proposes to apply to

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9 *Id.*, at ¶ 19-21.

10 *Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.4 GHz, and 48.2-50.2 GHz Frequency Bands*, Report and Order, 13 FCC Rcd 24,649 (1998) ("36-51 GHz Order").

11 FNPRM, at ¶ 20.

12 36-51 GHz Order, 13 FCC Rcd at 24,666-24,667 ¶ 31.

FSS in the 37.5-40.0 GHz band. An FSS allocation in the 42.0-42.5 GHz band is also consistent with the WRC-2000 results.[13]

The FNPRM does not provide an allocation for FSS in the 42.0 to 42.5 GHz band. Currently, the band is allocated to Fixed Service, Mobile Service, Broadcasting, and Broadcasting Satellite Service ("BSS") and is designated for wireless services.[14] In the FNPRM, the Commission proposes to retain the designation for wireless services[15] and states that it does "not propose to allocate the 42.0-42.5 GHz band for FSS in the United States."[16] WRC-2000, on the other hand, includes an allocation for FSS in the 42.0-42.5 GHz band.[17] The Commission also proposes in the FNPRM to redesignate the adjacent band, 41.0-42.0 GHz, exclusively for satellite service, including FSS.[18]

There seems little reason to believe that the FSS cannot operate in the 42.0 to 42.5 GHz band under the same conditions as the Commission proposes to apply to FSS operations in the 37.5 to 40.0 GHz band. In the FNPRM, the Commission reiterates its intention to "permit – subject to certain conditions – some FSS use in [the 37.5 to 40.0 GHz] band."[19] The additional allocation of 500 megahertz for FSS would provide future FSS licensees more flexibility in deploying their satellite systems, especially given the proposed designation of the 40.0-42.0 GHz band for FSS, and would not adversely affect other

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13 *WRC-2000 Final Acts*, Art. S5.
14 47 C.F.R. § 2.106.
15 FNPRM, at ¶ 12.
16 *Id.*, at ¶ 33.
17 *WRC-2000 Final Acts*, Art. S5.
18 FNPRM, at ¶ 15.

operations in the 42.0 to 42.5 GHz band or adjacent bands. Finally, the allocation of 42.0 to 42.5 GHz band for FSS is also consistent with WRC-2000, a stated purpose of the FNPRM.[20]

In order to protect Radio Astronomy from potential interference, Spectrum Astro proposes that the Commission incorporate footnote S5.551G to the Radio Regulations as adopted by WRC-2000, rather than in the modified version as proposed in the FNPRM.[21] WRC-2000 modified Resolution 128 and adopted footnote S5.551G to the Radio Regulations. Resolution 128 prevents administrations from implementing FSS in the 41.5-42.5 GHz band pending an agreement on measures to protect Radio Astronomy.[22] Footnote S5.551G imposes PFD limits on geostationary FSS and BSS operations in the 42.0-42.5 GHz band.[23] Because the Commission does not propose to allocate the 42.0-

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19 FNPRM, at ¶ 19.

20 *Id.*, at ¶ 12; *see WRC-2000 Final Acts*, Art. S5.

21 FNPRM, at ¶ 33.

22 *WRC-2000 Final Acts*, Res. 128.

23 *Id.*, Art. S5 n. S5.551G. Footnote S5.551G provides:

> In order to protect the radio astronomy service in the band 42.5-43.5 GHz, the aggregate power flux-density in the 42.5-43.5 GHz band produced by all the space stations in any non-geostationary-satellite system in the fixed-satellite service (space-to-Earth) or in the broadcasting-satellite service (space-to-Earth) system operating in the 41.5-42.5 GHz band shall not exceed –167 dB(W/m^2) in any 1 MHz band at the site of a radio astronomy station for more that 2% of the time. The power flux-density in the band 42.5-43.5 GHz produced by any geostationary station in the fixed-satellite service (space-to-Earth) or in the broadcasting-satellite service (space-to-Earth) operating in the band 42-42.5 GHz shall not exceed –167 dB(W/m^2) in any 1 MHz band at the site of a radio astronomy station. These limits are provisional and will be reviewed in accordance with Resolution 128 (Rev. WRC-2000).

42.5 GHz band to FSS, it proposes to apply footnote S5.551G for FSS only in the 41.5-42.0 GHz band.[24] Spectrum recommends that the Commission extend the application of footnote S5.551.G to the 42.0 to 42.5 GHz band consistent with an FSS allocation in that band.

Spectrum Astro believes that footnote S5.551G adequately protects Radio Astronomy because the PFD limits proposed on FSS operations in that band are sufficient to prevent interference to Radio Astronomy. The larger terminals required to operate FSS networks under the PFD limits adopted at WRC-2000 will ensure protection of Radio Astronomy in the 42.5 to 43.5 GHz band. Spectrum Astro recognizes that footnote S5.551G is a provisional protection measure, but believes that any concern with the provisional nature of this footnote can be addressed at WRC-2003.

3. The Commission Should Allow FSS in the 42.5-43.5 GHz and 47.2-48.2 GHz Bands

In the FNPRM, the Commission requests comments on whether to return the 42.5-43.5 GHz and 47.2-48.2 GHz bands to their original allocations for both Government and non-Government use.[25] Spectrum Astro supports the notion of returning these bands to their original allocations, which would permit FSS (Earth-to-space) for non-Government uses in both bands. The FSS (Earth-to-space) allocation is necessary to promote a balance

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Id.

24 FNPRM, at ¶ 33.

25 *Id.*, at ¶ 30.

between uplink and downlink spectrum and to provide for consistency with international frequency allocations.

The 42.5-43.5 GHz band is currently allocated domestically to Fixed Service, FSS (Earth-to-space), and Mobile Service on a co-primary basis for *Government* uses and for Radio Astronomy.[26] The allocation for Government use was made in the *36-51 GHz Order* as part of a spectrum swap in which the 42.5-43.5 GHz band was allocated for Government use and the 47.2-48.2 GHz band was allocated for non-Government use.[27] WRC-2000 allocations provides for FSS (Earth-to-space) in the 42.5-43.5 GHz band.[28]

The 47.2-48.2 GHz band is currently allocated domestically to Fixed Service, FSS (Earth-to-space) and Mobile Service on a co-primary basis for non-Government uses.[29] The band was intended by the Commission to serve the needs of High Altitude Platform Service ("HAPS") operators, but over the past two years the HAPS proponents have abandoned their interest developing a service in this band. The 47.2-48.2 GHz band was made available to HAPS through the frequency swap provided the 42.5-43.5 GHz band for exclusive Government use.[30] WRC-2000 provides for co-primary allocations for Fixed Service, FSS (Earth-to-space) and Mobile Service in the 47.2-48.2 GHz band.

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26 47 C.F.R. § 2.106.

27 *See* 36-51 GHz Order, 13 FCC Rcd at 24,669-24,672 ¶¶ 37-42 (providing the rationale for the frequency swap).

28 *WRC-2000 Final Acts*, Art. S5.

29 47 C.F.R. § 2.106.

30 FNPRM, at ¶ 29; *see* 31-56 GHz Order, 13 FCC Rcd at 24,669-24,672 ¶¶ 37-42.

Spectrum Astro proposes that the Commission return the 42.5-43.5 GHz and 47.2-48.2 GHz bands to their original allocations for both Government and non-Government uses, permitting FSS (Earth-to-space) for non-Government operators in the 42.5-43.5 GHz band and retaining the current allocation in the 47.2-48.2 GHz band for FSS (Earth-to-space) for non-Government operators. Allowing spectrum for FSS uplinks in these bands is necessary to provide balance between FSS downlink and FSS uplink allocations. Under the Commission's new band plan set forth in the FNPRM, FSS has access to a total 4.5 GHz of space-to-Earth spectrum.[31] This includes allocations in the 40.0-42.0 GHz band, which the Commission proposes to designate for FSS, and the 37.5-40.0 GHz band where Commission proposes to allow FSS subject to certain conditions. However, the Commission's current band plan provides only 3 GHz of Earth-to-space spectrum for non-Government use, that is, in the 47.2-50.2 GHz band.[32] Allowing non-Government FSS (Earth-to-space) in the 42.5-43.5 GHz and 47.2-48.2 GHz bands would also be consistent with the allocations made at WRC-2000, a stated purpose of the FNPRM.

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31 FNPRM, at ¶ 14.

32 47 C.F.R. § 2.106.

4. Conclusion

In summary, Spectrum Astro supports the Commission's proposal to add an FSS allocation in the 37.5-37.6 GHz band for GSO satellite networks. Adding 100 megahertz of spectrum as proposed by the Commission would allow for more flexibility in deployment of future GSO FSS systems and is also consistent with WRC-2000. In addition, Spectrum Astro proposes that the Commission add an FSS allocation also in the 42.0-42.5 GHz band, subject to the same conditions that the Commission proposes to apply to FSS in the 37.5-40.0 GHz band. The allocation would promote flexibility in FSS system deployment and is consistent with the WRC-2000 results. Finally, Spectrum Astro supports the notion of returning the 42.5-43.5 GHz and 47.2-48.2 GHz bands to their original allocations, which would permit FSS (Earth-to-space) for non-Government uses in both bands, consistent with international frequency allocations.

Respectfully submitted,

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